PICTURES

Diagrams could be drawn by pen on paper and then scanned in photo format. However, software within an Office suite, or the more specialist Corel Draw, can create and position lines, circles, curves, text etc. to form a digital drawing or diagram. This is normally stored in vector form as sets of point co-ordinates, line end-points, circle centre-point and radius, etc. In this form memory used is reduced and future editing is enabled.

Scans are made by a scanner which uses a linear array of photo sensors moving across any 2D image (text, diagram or picture) to produce a photo-type file. A slide-scanner can convert old 35mm transparencies into digital form. Its software can control the resolution and mono/ grey/ colour of the image produced. Text scans are like a photo image, they cannot be edited in this form, but can be converted in to a true text-file by character recognition software such that as in Google-Docs. Although separate A4 scanners are available, a combined printer (for a hard copy of text, document, diagram, photo etc.), scanner and copier (producing one or more copies of the original without using the computer) may prove a good economical choice.

Photographs can be taken with a digital camera, tablet or smart-phone, containing a lens with aperture and shutter controls to focus a scene onto a 2D array of photo-sensors to record a digital image in its SD card memory. Typically, a 6 Mp camera produces a 2000 x 3000 pixel coloured image. This might be stored in raw bit-map form in 6 x 3-colour = 18 MB; but using the Joint Photo Exchange Group (jpeg) compression technique can be reduced to about 2 MB. Photo software can upload such images from the camera, edit them for exposure, colour balance etc. and save them on the computer system.

Videos are essentially a set of sequential photos taken at discrete time intervals (1/20 sec) and played back to produce a moving image. Thus, an hour's video recorded in 18 MB bit-map form would require a total of 18 x 20 x 3600 = 1.3 TB – requiring both compression and lower image quality to fit onto a DVD